



Program

Boulder, Colorado, September 28-30, 2004

Tuesday, September 28, 2004

- 9:00 **Opening Remarks:** G.W. Day, NIST, Symposium General Chair, P.A. Williams, NIST, Symposium Program Chair
- Session I. Wavelength Metrology, Chair: Sarah Gilbert, NIST**
- 9:15 **INVITED:** The Era of Coherent Optical Frequency References, L. Hollberg, C.W. Oates, S. Diddams, G. Wilpers, A. Bartels, C. Hoyt, Z. Barber, *NIST*
- 9:45 Generation of Standard Frequency References over the C and L Bands Using an Acetylene Cell and Four-Wave Mixing Enhanced by Raman Amplification, A. Carrasco-Sanz, S. Martín-López, M. González- Herráez, P. Corredora, M.L. Hernanz, *Instituto de Física Aplicada (CSIC)*
- 10:00 Infrared Frequency Comb for Frequency Metrology Based on a Tunable Repetition Rate Fiber Laser, B.R. Washburn, S.A. Diddams, N.R. Newbury, *NIST*; J.W. Nicholson, K. Feder, P.S. Westbrook, *OFS Laboratories*; C.G. Jorgenson, *OFS Fitel*
- 10:15 Accuracy Limits for Simple Molecular Absorption Based Wavelength References, W.C. Swann, S.L. Gilbert, *NIST*
- 10:30 Fast-Fourier-Transformation De-Convolutions for a Fabry-Perot Filter Based OSA: Demonstration of 15.0 dB Increase of Optical-Rejection-Ratio at ± 25.0 GHz from Peak, K.-C. Zeng, *Sunrise Telecom, Inc.*
- 10:45 **BREAK**
- Session II. Nonlinear Measurements, Chair: Mark Wegmuller, University of Geneva**
- 11:15 **INVITED:** Stimulated Brillouin Scattering: An Overview of Measurements, System Impairments, and Applications, A.B. Ruffin, *Corning, Inc.*
- 11:45 Coherence Effect on the Measurement of Optical Fiber Nonlinear Coefficient in Continuous-Wave Dual Frequency Method, S.K. Kim, H.S. Moon, R.K. Kim, J.-C. Seo, *Korea Research Institute of Standards and Science*
- 12:00 ITU-T Round Robin Measurement for Nonlinear Coefficient (n_2/A_{eff}) of Various Single Mode Optical Fibers, Y. Namihira, *University of the Ryukyus*
- 12:15 Broadband Continuous-Wave Source Based on Fiber Nonlinearity, M. González-Herráez, S. Martín-López, P. Corredora, M.L. Hernanz, A. Carrasco-Sanz, *Instituto de Física Aplicada (CSIC)*
- 12:30 **LUNCH**
- Session III. Fiber Characterization, Chair: Timothy Drapela, NIST**
- 2:00 **INVITED:** Characterization of Photonic Crystal Structures, J. O'Brien, J.-R. Cao, A. Stapleton, M.-H. Shih, W. Kuang, W.J. Kim, Z.-J. Wei, S.-J. Choi, P.D. Dapkus, *University of Southern California*
- 2:30 Ultrasensitive Measurement Method for Refractive Index Difference between Two Wavelengths, M. Legré, M. Wegmuller, N. Gisin, *University of Geneva*
- 2:45 Tomographic Reconstruction for Arbitrary Refractive Index Distribution of Optical Fibre Preforms, Y.C. Zhao, S. Fleming, K. Lytykainen, M.A. van Eijkelenborg, *Australian Photonics CRC, Optical Fibre Technology Centre, University of Sydney*
- 3:00 Micro-Analytical Techniques for Imaging Erbium Doped Optical Fibers, F. Sidiropoulos¹, S.T. Huntington¹, R. Stern², G. Baxter³, A. Roberts¹, ¹*University of Melbourne*; ²*Victoria University*; ³*University of Western Australia*
- 3:15 Measuring Electro-Optic Coefficients of Poled Polymers Using Fiber-Optic Mach-Zehnder Interferometer, Y.-P. Wang, J.-P. Chen, X.-W. Li, J.-X. Hong, X.-H. Zhang, J.-H. Zhou, A.-L. Ye, *State Key Laboratory on Local Fiber-Optic Communication Networks and Advanced Optical Communication Systems, Shanghai Jiao Tong University*
- 3:30 **BREAK**
- Session IV. OTDR and Chromatic Dispersion, Chair: Casey Shaar, Photon Kinetics**
- 4:00 **INVITED:** Concepts and Techniques for Short Optical Pulse Characterization, C. Dorner, *Bell Laboratories-Lucent Technologies*
- 4:30 High Spatial Resolution PON Measurement Using an OTDR Enhanced with a Dead-Zone-Free Signal Analysis Method, N. Araki, H. Izumita, Y. Koshikiya, M. Nakamura, *NTT Corporation*
- 4:45 A Bi-Directional Optical Time Domain Reflectometry Technique Optimised for Short LAN Fibers, N.D. Channon, *Megger Limited*; A.G. Hallam, *Halcyon Optical Services*
- 5:00 An Improved Method for the Distributed Measurement of the Chromatic Dispersion of an Optical Fiber Using a Wavelength Tunable OTDR, S.G. Murdoch, *Department of Physics, University of Auckland*; D.A. Svendsen, *Photon Kinetics (UK), Ltd.*
- 5:15 Inter-Comparison of Chromatic Dispersion Reference Fibre Measurements: Results of Euromet Project 666, J. Morel, *Swiss Federal Office of Metrology and Accreditation (METAS)*
- 5:30 **SESSION CLOSE**
- 6:30 **RECEPTION, MILLENNIUM HARVEST HOUSE**

Wednesday, September 29, 2004

Session V. PMD, Chair: Greg Schinn, EXFO

- 9:00 **INVITED:** Generalized Interferometric Method for Accurate Match with DGD Measurements and Comparison Against Standard References, N. Cyr, *EXFO Electrical Optical Engineering*
- 9:30 Study of Variation of the Laplacian Parameter of DGD Time Derivative with Fiber Length Using Measured DGD Data, P.K. Kondamuri, C. Allen, *University of Kansas*; D.L. Richards, *Sprint Corporation*
- 9:45 The Long-Term Distribution of Differential Group Delay in a Recirculating Loop, H. Xu¹, B.S. Marks^{1,2}, J. Zweck³, L. Yan¹, C.R. Menyuk¹, G.M. Carter^{1, 2}, ¹*Department of Computer Science and Electrical Engineering, University of Maryland Baltimore County*; ²*Laboratory for Physical Sciences*; ³*Department of Mathematics and Statistics, University of Maryland, Baltimore County*

- 10:00 Experience in Reflectometry and PMD Measurements for WAN in Costa Rica, L.D. Marin-Naranjo, *University of Costa Rica, Photonics and Laser Laboratory LAFTLA*
- 10:15 Locating High PMD Sections of an Overhead Cable Using Polarization-OTDR, A.B. Connibear¹, F.J. Visser², F. Audet³, R. Salmi³, A.W.R. Leitch¹, ¹*University of Port Elizabeth;* ²*Telkom S.A.;* ³*EXFO*
- 10:30 BREAK**
- Session VI. PMD and Polarization, Chair: Tom Hanson, Corning, Inc.**
- 11:00 Effects of Polarization-Mode Dispersion on Four-Wave Mixing Efficiency, M. González-Herráez, J. Pelayo, P. Corredora, M.L. Hernanz, J.A. Méndez, S. Martín-López, A. Carrasco-Sanz, *Instituto de Física Aplicada (CSIC)*
- 11:15 Calibration of a Polarisation Rotator, to Launch Defined Polarisation States, D. Ives, NPL
- 11:30 Extraction of Orthogonal Incident State of Polarization Spectra Using Mueller Matrix Approach, É. Desfonds, K. Pimenov, *MetroPhotonics;* T.J. Hall, *University of Ottawa*
- 11:45 Detailed Polarization Properties Comparison for Three Completely Different Species of Highly Birefringent Fibers, M. Wegmuller, M. Legré, N. Gisin, *University of Geneva,* K.P. Hansen, T.P. Hansen, C. Jakobsen, *Crystal Fibre A/S*
- 12:00 Determination of the Phase and Group Birefringence of Single-Mode Optical Fibers Based on the Twist, M. Legré, M. Wegmuller, N. Gisin, *University of Geneva*
- 12:15 An Improved Lyot Fibre Depolariser, M. Matar¹, I.M. Bassett¹, B. Gordon², J.H. Haywood¹, A. Michie¹, ¹*Australian Photonics CRC, Optical Fibre Technology Centre;* ²*Cochlear, Ltd*
- 12:30 **LUNCH**
- Session VII. Optoelectronics Applications, Chair: Janet Jackel, Telcordia**
- 2:00 **INVITED:** Measurement Issues in Microwave Photonics, J. Capmany, D. Pastor, B. Ortega, S. Sales, *Politécnica de Valencia*
- 2:30 **INVITED:** Applications of Metrology for Optical Coherence Tomography, T.E. Milner, N.J. Kemp, C.G. Rylander, D.P. Davé, *University of Texas at Austin*
- Session VIII. Fiber Optic Power and Loss, Chair: Janet Jackel, Telcordia**
- 3:00 High-Power Nonlinearity of Optical Fiber Power Meters, I. Vayshenkar¹, R. Swafford², S. Yang¹, ¹*NIST;* ²*OZ Optics*
- 3:15 Characterization of a High Power and High Accuracy Integrating Sphere Radiometer for Fiber Applications, P. Corredora, M.L. Hernanz, M. González-Herráez, S. Martín-López, A. Carrasco-Sanz, *Instituto de Física Aplicada (CSIC)*
- 3:30 Insertion Loss Measurement of Low Loss Fiber Optic Splices, L. Wesson, *Aurora;* P. Arrowsmith, R. Suurmann, *Celestica;* D. Gignac, *Nortel Networks;* S. Pradhan, *Sanmina-SCI;* J. Garren, *Solelectron;* T. Watanabe, *Sumitomo Electric;* E. Mies, *Vytran*
- 3:45 **BREAK**
- 4:15 **SOFM Workshop – Fiber to the Masses: Metrology and Motivation for the “Last Mile”**
- Overview of Active Network Solutions - Mathieu Tallegas, Director of Product Management, *World Wide Packets*
- Overview of Passive Optical Networks – David Cleary, Vice President of Advanced Technology, *Optical Solutions, Inc.*
- Unique Metrology Issues in the Last Mile – Marc Breton, Chief Metrologist, *EXFO*
- 5:45 **SESSION CLOSE**

Thursday, September 30, 2004

- Session IX. Network Measurements, Chair: William Reed, OFS**
- 9:00 **INVITED:** Quantum Cryptography in Optical Networks and Supporting Metrology, R.J. Runser¹, P. Toliver¹, S. McNow², T.E. Chapuran¹, M.S. Goodman¹, J. Jackel¹, R.J. Hughes³, J.E. Nordholt³, C.G. Peterson³, K. Tyagi³, P. Hiskett³, K. McCabe³, ¹*Telcordia Technologies;* ²*Laboratory for Telecommunication Science;* ³*Los Alamos National Laboratory*
- 9:30 Measurement of Phase Diagrams of Optical Communication Signals Using Sampled Coherent Detection, M.G. Taylor, *University College London*
- 9:45 Demonstration of Birefringence in a Bulk Semiconductor Optical Amplifier and Its Application to All-Optical Wavelength Conversion, L.Q. Guo, M.J. Connelly, *University of Limerick*
- 10:00 Effects of Optical Coherence and Polarization in Optical ANA, D.A. Humphreys, *NPL*
- 10:15 Characterization of Multimode Fiber for 10+ Gb/s Operation by Predicting ISI from Bandwidth Measurement Data, J.S. Abbott, *Corning, Inc.*
- 10:30 **BREAK**
- Session X. Fiber Bragg Gratings and Fiber Sensors, Chair: Gordon Day, NIST**
- 11:00 **INVITED:** Fibre Sensing: Specifying Components and Systems, B. Culshaw, *University of Strathclyde, Electronic and Electrical Engineering;* W. Habel, *Federal Institute for Materials Research and Testing (BAM)*
- 11:30 Accurate Index Profile Measurements for Fiber Bragg Gratings and Sensor Application, X. Chapeleau¹, D. Leduc¹, P. Casari², Y. Quiquempois³, J. Lebon², F. Lopez³, C. Lupi¹, C. Boisrobert¹, ¹*Université de Nantes;* ²*Institut de Recherche en Génie Civil et Mécanique (GéM);* ³*Université des Sciences et Technologies de Lille*
- 11:45 Analysis of a Fiber Bragg Grating Writing Process Using Low-Coherence Interferometry and Layer-Peeling, R.J. Espejo, M. Svalgaard, S.D. Dyer, *NIST*
- 12:00 CO₂-Laser Induced LPFG's Torsion Characteristics Depending on the Length of the Twisted Fiber, Y.P. Wang, J.-P. Chen, *State Key Laboratory on Local Fiber-Optic Communication Networks and Advanced Optical Communication Systems;* Y.-J. Rao, *Department of Optoelectronic Engineering, Chongqing University*
- 12:15 **SYMPORIUM CLOSE**

SYMPOSIUM COMMITTEE

G.W. Day, NIST, General Chair, P.A. Williams, NIST, Program Chair

M. Artiglia, *Pirelli*
A. Barlow, *PerkinElmer*
T.J. Drapela, *NIST*
S.C. Fleming, *Sydney Univ.*

D. Franzen, *NIST*
N. Gisin, *Univ. of Geneva*
M. Hackert, *U.S. Navy*
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